

1 1. (Amended) A system for blending a source color value with at least one color
2 value using a blend value, the system comprising:
3 a source register for storing a source color value, the source register having inputs and
4 outputs, the inputs of source register coupled to receive a source color value;
5 a blend register for storing a blend value, the blend register having inputs and outputs, the
6 inputs of [source] blend register coupled to receive a blend value;
7 a composite destination generator having inputs and outputs, the composite destination
8 generator for producing a composite destination color value, the inputs of the
9 composite destination generator coupled to receive a plurality of destination color
10 values; and
11 a blending unit having inputs and outputs, the blending unit coupled to the output of the
12 source register, the output of the blend register and the output of the composite
13 destination generator, the blending unit producing a blend result from the source
14 color value, the blend value and the composite destination color value.

1 2. (Unchanged) The system of claim 1, wherein the composite destination generator
2 further comprises:
3 an accumulator having a plurality of inputs and output for summing a plurality of
4 destination color values, the plurality of inputs coupled to receive respective
5 destination color values; and
6 a divider having a first input, a second input and an output, the divider generating the
7 composite color value, the first input coupled to the output of the accumulator, the

8 second input coupled to receive a value indicating the number of color values
9 being combined.

1 3. (Unchanged) The system of claim 1, wherein the composite destination generator
2 further comprises an adder coupled to receive a pixel mask signal.

1 4. (Unchanged) The system of claim 1, wherein the divider is a group of shift and
2 add registers.

1 5. (Unchanged) The system of claim 2, wherein the composite destination generator
2 further comprises a plurality of destination registers, each of the destination registers storing a
3 respective sub-sample of the destination color for a pixel, each of the destination registers having
4 an input and an output, the inputs of the destination registers coupled to receive respective
5 destination sub-sample color values, the outputs of the destination registers coupled to respective
6 inputs of the accumulator.

1 6. (Unchanged) The system of claim 5, wherein the number of destination registers
2 is eight.

1 7. (Amended) The system of claim 1, wherein blending unit further comprises:
2 a first multiplier having inputs and outputs, the first multiplier coupled to the output of
3 the source register and the output of the blend register, the first multiplier
4 generating a first portion of the blend result;

5 a subtracter having inputs and outputs, the subtracter coupled to [the output of] the output
6 of the blend register, the subtracter generating a value for blending the destination
7 color;

8 a second multiplier having inputs and outputs, the second multiplier coupled to the output
9 of the subtracter and the composite destination generator, the second multiplier
10 generating a second portion of the blend result; and

11 an adder having inputs and an output, the inputs coupled to output of the first multiplier
12 and the second multiplier for receiving the first portion and the second portion,
13 the adder summing the first and second portion to produce the blended result.

1 8. (Unchanged) The system of claim 1, further comprising a box filter having inputs
2 and outputs, the input of the box filter coupled to the output of the over sampling buffer, and the
3 output of the box filter coupled to the input of a frame buffer interface.

1 9. (Amended) The system of claim 1, further comprising an over sampling buffer
2 having a first set of inputs/outputs, a second set of input/outputs, and a third set of inputs/outputs,
3 the first set of inputs/outputs of over sampling buffer coupled a frame buffer, a second set of
4 input/outputs of the over sampling buffer coupled to the source register, and the third set of
5 inputs/outputs coupled between the over sampling buffer and the alpha blending unit.

1 10. (Amended) A method for performing blending of a pixel represented by a
2 plurality of [destination] sub-samples with a source color value, the method comprising the steps
3 of:
4 determining a number of sub-samples to be blended;
5 retrieving a destination color value for each sub-sample;

6 adding the retrieved destination color value for each sub-sample to produce a sum;
7 generating a composite destination color value;
8 retrieving a source color value;
9 retrieving a blend value; and
10 generating a blended result using the retrieved source color value, the blend value and the
11 composite destination color value.

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2 11. (Amended) The method of claim 10, wherein each pixel is represented by a
plurality of [destination] sub-samples and the method further comprising the steps of:

3 selecting a pixel for blending; and
4 determining a subset of the plurality of the [destination] sub-samples to be blended.

1 12. (Unchanged) The method of claim 10, wherein the step of generating a composite
2 destination color value is performed by dividing the sum by the determined number of sub-
3 samples to be blended.

1 13. (Amended) The method of claim 10, wherein the step of generating the blend
2 [value] result further comprises the steps of:

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3 multiplying the source color value by the blend value to produce a first portion;

4 subtracting the blend value from one to produce a subtracted value;

5 multiplying the composite destination color value by the subtracted value to produce a
6 second portion; and

7 adding the first portion and the second portion[s] to produce the blend result.

1 14. (Unchanged) The method of claim 10 further comprising the step of storing the
2 blended result back in the frame buffer as the destination color for each of the retrieved sub-
3 samples.

1 15. ~~(Unchanged)~~ The method of claim 10 further comprising the step of box filtering
2 the blended result.

1 16. (Amended) An apparatus for performing blending of a pixel represented by a
2 plurality of [destination] sub-samples with a source color value, the apparatus comprising:

~~A~~ means for determining a number of sub-samples to be blended;

4 means for retrieving a destination color value for each sub-sample;

5 means for adding the retrieved destination color value for each sub-sample to produce a
6 sum;

7 means for generating a composite destination color value;

8 means for retrieving a source color value;

9 means for retrieving a blend value; and

10 means for generating a blended result using the retrieved source color value, the blend

11 value and the composite destination color value.

1 17. (Amended) The apparatus of claim 16, wherein each pixel is represented by a
2 plurality of [destination] sub-samples and the apparatus further comprises:

3 means for selecting a pixel for blending; and

4 means for determining a subset of the plurality of the [destination] sub-samples to be
5 blended.

1 18. (Unchanged) The apparatus of claim 16, wherein the means for generating a
2 composite destination color value divides the sum by the determined number of sub-samples to
3 be blended.

1 19. (Amended) The apparatus of claim 16, wherein the means for generating the
2 blend [value] result further comprises:
3 means for multiplying the source color value by the blend value to produce a first
4 portion;
5 means for subtracting the blend value from one to produce a subtracted value;
6 means for multiplying the composite destination color value by the subtracted value to
7 produce a second portion; and
8 means for adding the first [and second] portion[s] and the second portion to produce the
9 blend result.

1 20. (Unchanged) The apparatus of claim 16 further comprising means for storing the
2 blended result back in the frame buffer as the destination color for each of the retrieved sub-
3 samples.

1 21. (Unchanged) The apparatus of claim 16 further comprising means for box
2 filtering the blended results.